reading habits (Hundleby, Carpenter, Ross, & Mercer, 1982). Bachman, Johnston, and O'Malley (1981) reported that both commitment to higher education and self-reported grades during highschool correlated negatively with smoking. Using Jackson's (1968) Personality Research Form, Labouvie and McGee (1986) found, in a longitudinal study, that lower scores on 'achievement' and 'cognitive structure' predicted earlier, faster and heavier use of alcohol, cigarettes, marijuana and cocaine.

Although the correlation between smoking and scholastic achievement is well-documented, the explanations for it are varied (Reeder, 1977). Newman (1970a), for example, suggested that smoking may be a compensatory act by students who do not succeed educationally or socially. Mausner (1973) proposed that society perceives a utilitarian function in smoking, and thus cigarette use is viewed as a sort of coping mechanism. If so, academic anxiety might predispose students to smoke in order to alleviate stress. Alternatively, Banks et al. (1978) proposed that some teens may reject school and school--associated values in exchange for a youth subculture which would accept, if not encourage smoking. This view is consistent with Pflaum's (1965), who proposed that the negative relation between grades and smoking "...reflects more on the educational system than on the smoker. In both high school and college, smoking reflects a lack of involvement in the scholastic program and an attempt to obtain satisfactions outside the

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school environment. The educati al system is perhaps not meeting the needs of the smoking dent" (p. 201).

Brunswick and Messe 1984a, 1984c) refer to these potential explanations as psychogenic and differential socialization arguments, respectively. The authors point out that each interpretation entails a different sequence of empirically testable relationships. The psychogenic approach views smoking as a coping response to academic anxiety or failure. If this view is correct, then declines in achievement should be followed by or accompanied by increases in psychological distress. This, in turn, would increase the likelihood of smoking. Furthermore, if stress is controlled for, the association between poor achievement and smoking should diminish.

The differential socialization approach views the link between smoking and poor achievement as an artifact of a third variable -- namely a conventional, success-oriented outlook towards schoolwork and academic goals. According to this view, a rejection of the dominant value system would result in both higher smoking rates and poorer grades, but should be independent of ability and anxiety. In their attempt to clarify which of these processes underlies the relationship between smoking and achievement, the authors obtained equivocal results. School anxiety increased the risk of smoking among black urban females, but not among males. Differential socialization factors predicted smoking for males, but not for

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females. The complexity of the outcome suggests that school-related socialization experiences may differ markedly across various groups which may only appear to be similar.

Newman's (1970b) study provides another example of a complex interplay between personal dispositions and school-related social influences. He found that junior highschool smokers were bimodally distributed across a 'social status' dimension. The two groups who smoked the most came from opposite ends of the status continuum. Youths in the 'popular' group smoked covertly, and took pains to conceal the habit. The 'hoods', at the bottom of the social status hierarchy, smoked openly and often. Sex differences further complicated the picture, but it is obvious that there was no straightforward relationship between school social status and smoking.

Rebelliousness

Rebelliousness or resistance to authority is frequently mentioned as a motivating factor in the initiation of smoking. Lawton (1962) speculated that lower grades, smoking, and relatively low participation rates in extracurricular school activities were all a reflection of rebellion. Hochbaum (1965) suggested that "... smoking among adolescents represents both a symbolic striving for adult status and a rebellion against adult authority" (p. 693). Similarly, Pflaum (1965) described smoking

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as a 'rite of passage', with the cigarette symbolizing adult status, power and privileges.

Smoking, in and of itself, cannot be interpreted as rebellion in the absence of any independent measure(s) of rebellion. In other words, one cannot argue that adolescents smoke because they are rebelling, and also use the fact that they are smoking as evidence of rebellion. There does seem to be ample documentation, from both cross-sectional and longitudinal studies, linking smoking to a rebellious-like disposition. Stewart and Livson (1966), for example, used teachers' ratings of children's behavior and attitudes towards school as a measure of childhood rebelliousness. They also utilized the California Psychological Inventory to measure adults' degree of conformity to society's mores. Rebelliousness consistently predicted smoking from kindergarten through adolescence, and adult smokers continued to hold more rebellious attitudes than nonsmokers. Subsequent studies, using a variety of different measures, have substantiated the notion that smoking is, in part, an expression of resistance or reaction to parental or adult authority. Clausen (1968), Gritz and Brunswick (1980), and Yankelovich et al. (1977) have all noted negative attitudes towards adult-imposed limits amongst female smokers. McAlister et al. (1984) found that both rebelliousness and disobedience distinguished smokers from nonsmokers in their cross-sectional study, and proposed that disobedient

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rebellious children are more susceptible to peer influence than those who are less resistant to parental influence.

Chassin et al. (1984) have considered rebelliousness in the context of problem behavior theory (Jessor & Jessor, 1977). According to this approach, behavior problems of adolescents indicate premature transitions to adult activities in violation of age norms. Since smoking is generally regarded as an adult prerogative, smoking among children is by definition a "problem behavior". It is possible that the precipitous adoption of adult behaviors on the part of children is a result of a general personality factor. Chassin et al. (1984) found that higher attitudinal tolerance for deviant behavior (which they labeled "deviance proneness") was a predictor of adolescent smoking onset, and of subsequent smoking (Chassin, Presson, & Sherman, 1984). Chassin et al. (1986) reported that sixth and seventh graders with stricter parents were more likely to begin smoking than those with less strict parents, thus suggesting a rebellion motive. In a cross-sectional study of 2,385 junior highschool students, Gordon (1986) found that those who had tried smoking were more rebellious than nonsmokers. Rebelliousness was measured by respondents' self-reports concerning the frequency of antiauthority or antisocial activities (i.e., bothering parents and teachers, in trouble with police).

It is worth noting that rebellion is not necessarily accompanied by a rejection of the values associated with

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academic success. Few studies have systematically examined rebelliousness, school achievement, and smoking status, however Newman (1970a) found no difference in personal achievement expectations between smokers and nonsmokers. Smokers, on the other hand, felt they were not meeting the school's and parents' expectations as often as nonsmokers did. McKennel and Bynner (1969) also found that British school boys who smoked had relatively poor grades, but nevertheless valued educational success as much as the nonsmokers. Rebelliousness and lowered academic performance may both be manifestations of a general disposition towards social deviance.

It is possible that other general personality traits may also contribute to a "deviance prone" susceptibility to smoking. Kellam, Ensminger, and Simon (1979), for example, found that aggressiveness in grade 1 was predictive of drug use (including cigarettes) ten years later. Another interesting finding was that IQ and school adaptiveness were also related to teenage drug use: "... teenage drug us [was] associated with not only early signs of trouble with authority but also early signs of intelligence, readiness for school, and social adaptive capacity" (p. 299). While the sample in their study consisted of low SES blacks, the data suggest that general precocity may be a predictor of subsequent "deviance proneness". Pulkinnen (1982), in a Finnish longitudinal study, found that aggressive-

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ness at age eight predicted subsequent smoking for both males and females. Lerner and Vicary (1984) have shown that difficult temperament at age 5 -- indexed by negative mood and high intensity of reactions -- was associated with later tobacco, alcohol, and marijuana use in young adulthood. The traits of aggressiveness, precocity, negative mood, etc. may be indirectly related to measures of 'rebelliousness', and may contribute to the relationship between rebellion and smoking. The presence of such long-term predictive factors is also compatible with the notion of a biological susceptibility to smoking (Eysenck, 1986; Hughes, 1986; Kozlowski & Harford, 1976).

Willingness to take risks is another psychological characteristic which may create additional vulnerability to the social pressures described in the previous section. Moore and Quinlan (1985) have shown that both encountering and complying with challenges involving physical risk (violence, smoking, drinking) are commonplace for grade 7 males and females in Canada and Australia. Some youths may be more ready than others to accede to dares. Hirschman et al. (1984) found that 'risk takers' were more likely to have tried a cigarette, and to have progressed to a second one. Collins et al. (1987) have described similar data. Labouvie and McGee (1986) reported that teens who scored lower on 'harmavoidance' progressed more quickly to heavier levels of drug use. Sensation - seeking is yet another personality dimension which may

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predispose youths to experimentation with drugs, including cigarettes (Zuckerman, 1979). Zuckerman and Neeb (1980) reported that smokers had higher scores on the sensation seeking scale, than did nonsmokers, although the relationship with amount of smoking was not linear. Bachman, Johnston, and O'Malley (1981) found three variables which were important predictors of all types of substance use: truancy, number of evenings out for recreation, and religious commitment. "Interestingly, all three have to do with the degree to which a young person is under the direct influence and/or supervision of adult-run institutions -- the school, the home, and the church. Those who most avoid such influence are also the most likely to be involved in all forms of substance use" (p. 67).

Self-Image

Flay et al. (1983) have suggested that data concerning self-image might provide a means by which the role of personality factors could be tied to smoking onset. Some recent studies have investigated the notion that smoking is initiated, in part, because of a perceived overlap or congruence between adolescents' self-images and the images they hold of smokers. Smoking, it is argued, would help to confirm or maintain the existing self-images of these individuals. Also, smokers' 'images', as described by both smokers and

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nonsmokers are sometimes mentioned in the context of advertising, in the sense that adolescents might be motivated to emulate the models portrayed in advertisements. This latter issue will be dealt with more fully in the subsequent section on media effects.

One of the first investigations of smokers' images was carried out by McKennel and Bynner (1969) who asked 5,601 British school boys to rate smokers, nonsmokers, self, and the ideal self on 19 bipolar scales (e.g. tough - gentle). Factor analysis identified three main dimensions underlying the ratings: educational success, toughness, and precocity (referring to a special interest in attracting girls). Smokers and nonsmokers alike associated smoking with toughness. Smokers (but not nonsmokers) also linked smoking with precocity -- a feature which they thought nonsmokers lacked. With respect to educational success, smokers gave themselves a low rating, but gave their ideal self a high rating, suggesting (as noted earlier) that smoking is not necessarily accompanied by a rejection of academic values.

Bland, Bewley, and Day (1975) divided their sample of primary school boys into heavy, light, experimental, and nonsmokers, and had them describe themselves and typical smokers by means of an adjective check list. For all four groups, the image of self was quite different from that of the smoker. The difference was somewhat less pronounced for

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heavy smokers, but still present. Smokers were described by all groups as foolish, untidy, careless, and troublemakers whereas self-images were of boys who were friendly, sensible, good at sports and at schoolwork. As the authors acknowledge, the self-descriptions of smokers may have been idealized, and the descriptions of smokers may be have been constructed to match what the boys believed would be most acceptable to adults. If taken at face value, these data show that for children who begin smoking early (ages 10 - 11.5) they do not identify with their own professed image of a smoker.

Chassin, Presson, Sherman, Corty, and Olshavsky (1981) studied the features that ninth and tenth graders believe typified adolescent smokers and nonsmokers. The obtained stereotypes were then compared to ratings of self and ideal self. Of interest was whether the amount of overlap between self descriptions and smoker's would be related to intentions to smoke. The stereotypes of smokers were generally negative, but included some traits that could be construed as social assets. While the authors reported that nonsmokers who had self and ideal concepts that were close to the smoker stereotype were more likely to intend to smoke, the data were somewhat ambiguous. Two measures of intentions were obtained: "intentions to smoke", and "intentions to try a cigarette". Self and ideal concepts predicted intentions for the first measure, but not for the second. It is not clear how or why

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"trying a cigarette" is perceived by adolescents to be distinct or different from "intending to smoke". Moreover, as was pointed out in an earlier section, the role of intentions in predicting actual smoking remains to be clarified.

Barton, Chassin, Presson, and Sherman (1982) also looked at social image factors as predictors of smoking intentions. Sixth and tenth graders rated photographed child models, who were shown either with or without a cigarette, on a 12-item instrument made up of adjective pairs similar to Chassin et al.'s (1981) and McKennell and Bynner's (1969). Once again, the social image of smoking was an ambivalent one. Smoking models were perceived by both age groups to have several undesirable qualities. For the younger group, especially the girls, intentions to smoke were related primarily to the negative features of the smoker's social image. The less negatively they rated smoking models compared with nonsmoking models on several dimensions, the more likely they were to intend to smoke. Positive social assets associated with smoking did not predict intentions for the younger group, although positive image features (especially interest in the opposite sex) did predict intentions for the older adolescents.

Germer and Miller (1984) asked high school seniors to rate the likelihood that a fictional 17-year-old female smoker/nonsmoker would possess various personality traits. The smoker was appraised as having more negative traits than

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the nonsmoker. Respondents were not broken down according to their own smoking status. Grube, Weir, Getzlaf, and Rokeach (1984) used the Rokeach Value Survey (Rokeach, 1967) to compare smokers' and nonsmokers' self-images. All respondents, regardless of smoking status, had value images more similar to those of nonsmokers, compared to smokers. Potential smokers were more likely than smokers or nonsmokers to express value systems more similar to those attributed to smokers, although actual differences between all groups were small. Lastly, Hirschman et al. (1984), while not addressing the issue of image congruity, found that over 70% of 'triers' in their sample reported that they looked "silly or stupid" on the occasion of their first cigarette experience. Dermer and Jacobsen (1986) collected college students' evaluations of smoking and nonsmoking peers. Smoking reduced the favourableness of the ratings, independently of the respondents' smoking status.

Taken together, these studies present a confused, if not contradictory picture. Both smokers and nonsmokers consistently perceive negative features to be associated with smoking, although there are some potential positive traits also indicated. In the absence of any longitudinal data the possibility cannot be ruled out that self-images are a consequence of smoking rather than a precursor. The evidence does not support the claim that smokers are perceived to be

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especially attractive or sophisticated and that therefore adolescents elect to smoke in pursuit of these characteristics. On balance, self-image research does not seem to have shed much light on mechanisms relating personality to smoking onset.

Multiple Drug Use

On the basis of his literature review, Pflaum (1965) proposed that "... smoking represents an attempt to master emotions by creating regularity and predictability. Those most emotionally susceptible to inconsistencies in the emotional and environmental spheres are those most likely to smoke..." (p. 204). Pflaum was suggesting that smoking represents a coping response to stress. Two decades later, Wills and Shiffman (1985) presented a conceptual framework in which substance use in general (particularly alcohol and tobacco) is viewed as a coping mechanism in response to various kinds of stress.

While the recognition that smoking may be engaged in in order to either arouse or relax the user is not new (Gilbert, 1979), the examination of the notions of stress, coping, and multiple drug use within an integrated theoretical framework is relatively recent. Previous investigators have noted a relationship between reported psychological distress and an increased

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likelihood of smoking (Hirschman et al., 1984) and of overall drug use (Crutchfield & Grove, 1984). Kozlowski (1979) pointed out that the use of other drugs is one of the most reliable correlates of cigarette smoking, yet the possible interactive effects of multiple drug use have rarely been incorporated into studies on the antecedents of adolescent smoking. Biglan and Lichenstein (1984) reported that frequency of marijuana use was the best predictor of smoking onset in middleschool. Bloom and Greenwald (1984) collected data on 596 children from grades five through seven, and found that smoking and drinking experimentation were highly correlated with one another, and with experimentation with marijuana. The average reported age of onset for drinking (i.e., first full drink) was 8.6 years.

Kovach and Glickman (1986) reported that almost half of their sample of highschool students indicated that they used drugs "to feel better", and a third reported using them "to feel less tense or nervous". Newcomb, Maddahian, and Bentler (1986) investigated longitudinally the value of ten risk factors (e.g., low grade point average, poor relationship with parents) in predicting levels of use of tobacco, alcohol, cannabis, and hard drugs for a sample of highschoolers in grades ten through twelve. The number of risk factors present was predictive of increases in use of all types of substances, for both males and females. The authors suggested that adolescence is a critical period for developing substance-related

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coping behaviors in response to stress. They speculated that persons with a relatively low-risk adolescence will not use drugs to handle distress as adults because they would not have acquired such a coping strategy in their teens. Wills (1986) has presented longitudinal data on seventh and eighth graders, showing that increases in stress were predictive of increased use of both alcohol and tobacco. Other investigators have also endorsed the notion that smoking (Penny & Robinson, 1986) or drug use in general (Newcomb & Harlow, 1986) represent coping behaviors which are engaged in in order to alleviate stress (c.f, Allen & Hiebert, 1991; Hansen, et al., 1987; Newcomb & Bentler, 1989; Robinson, et al., 1987; Stein, Newcomb, & Bentler, 1987; Warburton, Revell, & Thompson, 1991). Hadaway, Beyerstein, and Kimball (1986) caution against regarding smoking as an isolated behavior to be dealt with independently, but rather as one of a variety of potential coping responses to the stress associated with the adjustment demands of adolescence.

It is beyond the scope of this report to delve in detail into the literature on drug use in general, however it is becoming apparent that a full understanding of the antecedents of smoking may require information concerning the availability of and attitudes towards other drugs -- licit and illicit. Labouvie and McGee (1986), in noting that self esteem measures in their study were <u>not</u> associated with levels of drug use, postulated an

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historical change in the meaning of drug use amongst adolescents. They proposed that such use may no longer represent a deviant behavior in response to the experience of self-rejection (Kaplan, 1978). Jessor and Jessor (1977) have also commented that the social and personal meanings attached to behaviors such as drug use may depend in important ways on the time period during which the observations were made. Kovach and Glickman (1986) go so far as to suggest that drug use has become a normal, predictable form of behavior that accompanies adolescent development.

The psychological and social pressures for teenagers to use one drug are probably similar to the pressures to use others (Hundleby, et al. 1982). For example, Needle et al. (1986) reported older siblings to be a common source of drugs in general. Frequency of use of a variety of substances was predicted by older sibling and peer substance use, each after controlling for the other. Fawzy, Coombs, and Gerber (1983) found that 85% of mothers who smoked more than a pack a day had substance-using children -- defined as one who during the preceding month used alcohol or illegal drugs for the express purpose of altering mood. Similarly Marcos, Bahr, and Johnson (1986) determined that across four drug types (tobacco, alcohol, amphetamines and depressants, and marijuana) drug-using friends constituted the predominant influence on adolescent drug use.

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It is a fact that individuals who use one drug are very likely to use another. Kandel (1980) has described at least four distinct developmental stages in adolescent drug involvement: (1) beer or wine; (2) cigarettes and/or hard liquor; (3) marijuana; and (4) other illicit drugs. The identification of developmental stages of general drug use has important methodological implications for studying the factors which may predict or result from the use of a particular drug. "Whereas most studies compare youths within a total population on the basis of their use or nonuse of a particular substance, a different strategy is warranted: Each stage represents a cumulative pattern of drug use and generally contains fewer adolescents than the preceding stage in the sequence. Comparisons should thus be made between those members at a certain stage who have and those who have not already used the drug(s) at the preceding stage(s). Unless this is done, the attributes that appear to identify a particular stage of drug use may actually characterize involvement in drugs at the preceding stage..." (Kandel, 1980, p. 258). If beer or wine usage is a general precursor to cigarette smoking, large scale longitudinal studies which compare drinking and smoking patterns would provide valuable information on the role of alcohol use in smoking initiation. Kandel and Logan 's (1984) data showed that the initiation rates for alcohol were consistently higher than those for cigarettes from age 7 through to age 23. Almost 20% of the

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cohort reported having used alcohol by age 10, and over 50% by age 14. Newcomb and Bentler (1986) point out that these data, because they were collected retrospectively, are vulnerable to distortion because of possible recall biases. Other studies, however, have presented data consistent with the notion that alcohol use may precede tobacco experimentation (Coombs, Fawzy, & Gerber, 1986; Graham, et al., 1991; Keyes & Block, 1984; McNeill, et al., 1989; Newcomb, Maddahian, Skager, & Bentler, 1987; Sarvela & McClendon, 1983). Istvan and Matarazzo (1984) reviewed more than two dozen studies concerning the interrelationship between tobacco and alcohol, and concluded that alcohol and tobacco consumption could be linked by a common set of factors. In a sample of 27,335 public school students, Welte and Barnes (1987) noted an intimate association between smoking and alcohol use, drug use, and deviant behavior in general.

It might be argued that notions of coping and stress reduction have little to do with smoking initiation, since the user would have had to experience stimulation and/or relaxation in order to be motivated to smoke for those reasons. Leventhal and Cleary (1980), for example, discussed the regulation of internal emotional states in the context of maintenance -- their fourth stage of smoking. It is possible, however, that youthful experimenters may have already experienced the affective effects of alcohol before trying

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cigarettes. Consequently, they expect a comparable constellation of results from smoking, even though they have not yet used cigarettes.

Eiser (1985) argues that smoking 'expectancies' can be acquired from peers, often before and without the actual behavior occurring. This would explain, in part, Wills' (1985) observation that "...initiation of substances in early adolescence is not simply a matter of unwilling adolescents being pressured into substance use by peers. Rather, ...some adolescents are attracted to smoking situations and enter such situations with the full knowledge that they will (and will want to) have an opportunity to smoke" (p. 91). Eiser, Walsh, and Eiser (1986) proposed that anticipatory beliefs may play an important role in smoking acquisition. They found that 11-year-olds showed a good appreciation of the fact that smokers may smoke to alleviate a negative mood, as well as to obtain positive effects, even though the children in their sample had not actually experienced any cigarette-induced mood changes for themselves.

Most of the longitudinal studies on smoking reviewed in this and previous sections have compared a group of youths who subsequently take up smoking with all others who do not. A stage notion of drug use would require that the contrast groups be confined to those actually at risk for smoking initiation. Although there is no agreed-upon model stipulating

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the nature and sequence of drug involvement at different developmental periods (Kandel, 1975; Newcomb & Bentler, 1986), it is conceivable that if longitudinal analyses of smoking onset were restricted to adolescents who had already had some experience with alcohol, the profile of youths at risk to smoke would look different from the currently available picture.

Overview

On the basis of their study of 6,810 Massachusetts highschool students, Salber, Freeman, and Abelin (1968) concluded that "... understanding may be limited by the adoption of the position that the presence of a given behavior can be explained as the result of traits which predispose or motivate an individual to engage in the behavior" (p. 136). They recommended longitudinal studies, conducted in a developmental context, and utilizing a dynamic approach to the interplay of individual and sociological variables. Evans et al. (1979) lamented that "...no conceptual framework or organized line of research has systematically guided the research related to individual characteristics in the initiation of smoking, and the literature reflects the patchwork quality of the existing knowledge" (p. 16).

Conceptual guidelines are now available (Flay et al., 1983; Leventhal & Cleary, 1980), and longitudinal studies are

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more abundant. It is clear however, that the etiology of smoking is complex. There are numerous instances in the literature of involved interactions between individual characteristics and social influences. Blount and Dembo (1984), for example, investigated the impact of neighborhood values on tobacco, alcohol, and marijuana use. For tobacco and alcohol, peer use was predictive of personal use, regardless of how 'tough' or drug involved the neighborhood was perceived to be. For marijuana, however, the effects of peer influence were dependent on the perceived toughness of the neighborhood. Brunswick and Messeri (1984b) found a clear correlation between cigarette smoking and hard drug use in their sample of urban black adolescents, however the factors predicting smoking onset in males did not predict their hard drug use. For females, only 2 of 17 predictor variables were implicated in both smoking onset and drug use (i.e., lack of family involvement and absence of health concerns).

The complexity of these sorts of findings, in conjunction with the methodological concerns raised in the previous section, make it clear that much remains to be learned about the onset and developmental history leading to regular smoking. Limitations of the currently available knowledge notwithstanding, at least some of the important forces which contribute to the establishment of smoking during adolescence have been delineated.

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Parental and sibling smoking may "prepare" or predispose children to smoke long before the behavior is actually attempted. Baric and Fisher (1979) reported that it is not unusual for parents to engage fairly young children in activities such as handing parents cigarettes or bringing lighters or ashtrays to smoking adults. Parents serve as powerful models. If one or both parents smoke, modeling processes may have been operating for as long as a decade before any initiation occurs. A smoking sibling may constitute a different but uniquely persuasive sort of model because siblings are not likely to be perceived as adults. Older sisters seem to exert a particularly potent influence on their younger female siblings. Family smoking patterns form part of an immediate and intimate social milieu in which accepting attitudes are more likely to develop, and in which the social functions of smoking may be more salient. Parental smoking remains a strong predictor of smoking onset from grade six through highschool, and would appear to override any potential effect that verbal disapproval of smoking might have. A family setting in which smoking is frequent also provides the materials for initial experimentation.

While family influences may be important in creating attitudes accepting of, if not favorable toward smoking, peers appear to play a dominant role in both initiation and early maintenance. Not only does the presence of peer smoking models precede smoking onset, youths who continue to smoke

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tend to have a peer group in which smoking is prevalent, relative to 'triers' (i.e., those in the initial stages of experimentation). Smoking is a social activity for teenagers. Friends are very likely to be present on the first smoking occasion, and friends are often reported to be the source of cigarettes. Adolescent smokers frequently report having best friends and/or boyfriends/girlfriends who smoke. Hyllienmark (1986) has speculated that the cigarette may come to be perceived by some adolescents as a sort of symbol of group membership -- providing psychological comfort by denoting belongingness even when the individual is alone.

The most clearly documented individual characteristic predictive of smoking onset is deviance proneness. This feature is reflected in a variety of measures including lower achievement motivation, poorer academic performance, rebelliousness towards authority, a higher tolerance for deviant behavior in general, and a degree of alienation from traditional institutions. The younger the child, the more deviant (statistically) is the act of smoking. Thus, characteristics related to deviance proneness should predict smoking onset more strongly for younger children, compared to older ones. Chassin et al.'s (1984) data are consistent with this notion. Chassin (1984) has noted that amongst adolescents, unconventionality precedes substance use in general. She concluded that the more 'normative' the drug is within a

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particular social subculture, the less likely it is that rebelliousness will predict its use. In addition to a relatively unconventional outlook, youths at risk to smoke appear to have a more external control orientation. Extraversion may also be a predictor variable, although few studies have demonstrated the relationship within a longitudinal design.

Knowledge and beliefs about smoking, self-images, images of smokers, and reported intentions to smoke have a more uncertain status with respect to predictive power. While these factors are all undoubtedly related in some way to smoking behavior, whether they are causally linked to smoking onset remains to be seen.

A relatively recent line of inquiry views substance use in the context of coping mechanisms which are used to deal with stressful life circumstances. "From this perspective, persons are viewed as active agents who try to cope with the stressors and temptations they experience, rather than reacting passively to biological impulses or psychological temptations" (Shiffman & Wills, 1985, p. xxi). Hadaway et al. (1986) subscribe to a similar approach. Dembo, Blount, Schmeidler, and Burgos (1986) studied various risk factors associated with alcohol and marijuana use. They recommended viewing adolescents as "motivated actors" -- directing their own actions in a bid to achieve self-defined goals. Such a conception differs dramatically from a position which characterizes youths as

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relatively helpless pawns influenced by strong outside forces. While the utility of this approach to the understanding of smoking onset has not yet been demonstrated, it is a promising development. Poor school performance, family conflict, expectations of positive physical effects, and various other factors may combine to make substance use an attractive option for some adolescents. Furthermore, there is some evidence that experience with alcohol may be an important precursor to smoking experimentation.

Flay et al. (1983) pointed out that the process of becoming a smoker is stochastic. At each successive stage in the process (i.e., preparation, initiation, experimentation, etc.), the probability that a youth will proceed to the next stage is always less than one. There are always some youths who are "at risk" for various reasons, but who do not go on to the next stage of development. A potentially fruitful line of inquiry might entail a closer scrutiny of these subgroups. It is possible that these individuals possess some personal characteristics (not tapped by the conventional personality tests) which somehow 'protect' them from the risk factors.

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MEDIA EFFECTS

The Psychology of Advertising

The study of advertising effects -- especially effects as specific as those being considered here -- is a component of mass media research. Howitt (1982) described three major approaches to mass communications research: the effects model, the uses and gratifications model, and the cultural ratification model. The effects model is the most obvious perspective from which to investigate advertising, since it "...quite clearly ... reflects precisely the sort of concerns about the mass media which politicians and public alike seem to want to be dealt with" (Howitt, 1982, p. 7).

Basically, the effects model addresses the issue of whether particular media events have particular audience effects. There are however, some implicit assumptions in this approach that are problematic, one being that the media act directly on the audience. Howitt likens this conception to a 'hypodermic' model, wherein the media inject the audience with a dose of persuasive communication. The effects are assumed to be homogeneous, regardless of audience characteristics. Such an approach has difficulty sorting out media effects from those due to various other social forces. Also, the model

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typically fails to address the psychological mechanisms supposedly operating, and fails to associate these mechanisms with conceptions of receiver comprehension, or in the case of children, to developmental changes.

These conceptual weaknesses are sometimes evident in the arguments of authors who implicate cigarette advertising in the onset of smoking in adolescents. Critics often make vague allusions to "conditioning", and further imply that images or messages which purportedly reside in advertisements are inexorably and automatically deposited into the viewer's mind. For example, Wong-McCarthy and Gritz (1982) claim that there are numerous reasons for expecting that cigarette advertising can influence teenagers to begin smoking. One reason is that the models in the ads are wearing clothes suitable only for adolescents. Another is that the ads imply that there are social benefits from smoking. Notwithstanding the validity of these claims, how and why advertising's themes are perceived, apprehended and internalized by the viewer are not specified. Atkin, Hocking, and Block (1984) have made equally casual assumptions about conditioning and social learning theory in their attempt to link teenage beer drinking with television viewing. The authors cite Leventhal (1964) as arguing that "...young people are conditioned to accept alcohol advertising through jingles, sports associations, and identification with characters who display breeding and discriminating taste" (Atkin

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et al., 1984, p. 159). In fact, Leventhal did not argue this. The proposition was simply presented by him as an example of an undocumented claim which is often made by leaders of the anti-alcohol movement. There is no evidence of its validity, nor did Leventhal claim that there was.

Criticisms based on content analyses usually involve "...the fundamental error of simply equating the message propagated with the effect achieved..." (Bergler, 1981, p. 67). Identifying the features of advertisements is not too difficult, but the psychological processes of interpretation and assimilation are not advanced by this initial descriptive step. Some authors assume that the identification of a theme in advertisements is all that is required to demonstrate the advertisements' effects. (Fine, 1974; Myers, 1981; Warner, 1985). Such an approach cannot explain any effects, for it is neither dynamic, nor interactionist. A model of advertising effects which posits some sort of direct stimulus-response relationship between advertising and consumption does not do justice to the complexity of human motivation, nor, in the case of tobacco, to the psychology of smoking. At a basic minimum, such an approach cannot explain why there are nonsmokers.

The conceptual weaknesses of the effects model are also reflected in one of the dominant paradigms in consumer behavior which pertains specifically to advertising effects. The classical psychological explanation for advertising's effects has

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typically involved some sort of hierarchy of effects (HOA) model (Lavidge & Steiner, 1961). Such a model assumes a predictable, one-way relationship between various stages in a persuasion process which begins with attention to the advertisement and culminates in purchasing action. Thus advertising is assumed to create various pre-purchase mental states, and moves consumers through successive steps, the last of which is the actual act of buying the product. Such explanations are intuitively appealing. They make "common sense". Unfortunately, there is no empirical support for such a model (Leiss, Kline & Jhally, 1986; Murray, 1986; Palda, 1966).

Notwithstanding weak support, HOA models never were particularly well-articulated psychological models. It is one thing to propose that viewing or hearing an advertisement "creates brand awareness" or "establishes liking". It is quite another to specify just how or why the particular substance of the advertisement accomplishes these effects. Through what psychological mechanism or process do advertising's messages influence the receiver -- if they do influence the receiver? This is the sort of question that a true model of consumer behavior needs to address. So far, there has been only cursory consideration of such issues (Cobb & Hoyer, 1985). HOA models do not explain advertising effects -- rather they postulate some hopes, and indicate how some potential sorts of impact, which are intermediate between no effects at all and actual

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purchasing, might be measured. Because HOA models lend themselves to empirical study, they have had substantial impact on both practice and theory. The evidence shows that advertising's effect on consumer behavior is generally weak -- both absolutely and relative to other marketing considerations, not to mention other sources of information and influence (Driver & Foxall, 1984).

There are, of course, alternatives to HOA models for researching advertising effects, but any attempt to attribute significant influence to advertising per se has trouble explaining why so many new brands and new products fail in the market place -- in spite of heavy and sustained advertising campaigns. There is ample documentation that advertising is neither necessary nor sufficient for sales (Schudson, 1984). If "technology" is taken to mean the systematic application of psychological principles based on a serious understanding of consumer behavior, then there is no "technology" of advertising. Advertising practices are determined more by relatively arbitrary and capricious assumptions about what might work, than by any substantive knowledge of what does work. Despite all their efforts, ad agency workers are pretty much in the dark about the role their productions play in moving goods (Ramond, 1979). According to Schudson (1984), neither the client nor the agency ever know much about an ad's impact on sales or profits, in either the short term or the long term.

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Extravagant claims notwithstanding (e.g., Myers, 1984) there is not now, nor has there ever been any coherent psychology of consumer behavior that guides advertising methods. This is as true for tobacco ads as it is for any other product. The sheer volume of advertising expenditures for tobacco is large, and is often cited as prima facie evidence that advertising plays a causal role in initiating the habit. If advertising expenses are expressed as a proportion of sales however, cigarette advertising expenses are not atypical, compared to other products which sell widely, and for which market share competition is intense. Half a percentage point of the market share constitutes a commercial success for cigarettes. In the particular case of tobacco, there is evidence that advertising bans have had little impact on consumption. If product use is determined primarily by social influences (rather than commercial ones) then the futility of advertising bans is understandable (Waterson, 1984). As the preceding sections of this report have demonstrated, smoking has a complicated ontogeny.

Smoking and Advertising

Perhaps the most distinguishing feature of the research on the role of the media in smoking initiation is its scarcity. Flay et al. (1983) and Kozlowski (1979) acknowledge

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that there is no persuasive evidence linking advertising to smoking onset or maintenance. Nevertheless, prevention programs often include a component intended to train youths to resist the (presumed) effects of advertising (Evans et al., 1978; Killen, 1985; Wills, 1985). Such programs are mounted even though the supposed media effects have not been documented, nor are the prevention programs designed to yield evidence on which of their several components is responsible for the obtained results, if and when they occur.

Before reviewing the studies which have attempted to investigate a relationship between advertising and smoking, a comment on methodology is in order. Most researchers have addressed the question by soliciting from their respondents a verbal assessment of the degree to which advertising influenced their behavior. Such an approach assumes that people have relatively direct introspective access to internal motivational states. This assumption is a dubious one (Nisbett & Wilson, 1977). Bergler (1981), after reviewing the issue of smoking and advertising, concluded that verbal reports "...are strictly speaking quite worthless as evidence " (p. 88). "Worthless" is perhaps too strong a judgment, but even if one were to grant high validity to introspective accounts, the picture which emerges with respect to advertising's effects does not indicate that ads wield much influence.

Levitt and Edwards (1970) compared smokers

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and nonsmokers on their attitudes towards television cigarette commercials, and on various other variables. Multivariate analysis demonstrated that attitudes toward commercials were not predictive of smoking status. The authors concluded that a commercial ban would not affect youthful smoking. Ward (1971) queried 1,094 adolescents as to the "best" and "worst" commercials on television. Under "worst TV advertising", cigarettes was the single most frequently mentioned category. Mettlin (1973) found no relation between smoking rates of undergraduates and their self-reported frequency of exposure to media cigarette ads.

Fishbein (1977), commenting on the Ward (1971) and Levitt and Edwards (1970) studies, argued that an ad does not have to be liked to be effective. As was pointed out above, whether or not it was liked is probably irrelevant to any actual impact. In his review of potential principles of advertising communication, Ramond (1979) found no consistent relationship between whether an ad was liked, and its subsequent recall; nor was liking related to purchasing. Largely on the basis of an incomplete assessment of econometric studies, Fishbein (1977) also concluded that if an advertisement can influence brand loyalty, it can also initiate consumption.

Econometrically speaking, the proposal that advertising initiates consumption is an empirical question. If consumption were a direct result of advertising, the amount of

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cigarette advertising should be linked to the aggregate consumption of cigarettes. While a detailed review of econometric modeling is beyond the scope of this paper, the evidence of advertising's impact on consumption appears to be, at best, equivocal. Chetwynd, Coope, Brodie, and Wells (1988) reported a significant impact of advertising on aggregate demand for cigarettes in New Zealand (see also Chetwynd, Brodie, & Harrison, 1989; Harrison, Chetwynd, & Brodie, 1989). Their conclusions however, have been challenged (Boddewyn, 1989; Jackson & Ekelund, 1989), and the controversy continues (see also Chapman, 1989; Garrison, 1987; Johnson, 1986; 1988; Joossens, 1989; Tye, Warner, & Glantz, 1987). Smith (1989) reported the results of an investigation of the relationship between smoking initiation and advertising in 15 countries that varied in their restrictions on tobacco advertising. Advertising was a poor predictor of both smoking onset and prevalence.

A strong case can be made that advertising is much more influential in affecting brand choice than it is in persuading someone to buy a product in the first place (Schudson, 1984). According to Abernethy and Teel (1986) "...cigarette advertising primarily affects the market share of individual brands rather than aggregate consumption" (p. 55). Similarly, Moschis (1989) concluded that "... the data are far from being clear on whether cigarette advertising creates in any way the desire to initiate smoking and maintain smoking habits among youth" (p. 57).

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Some researchers attempt to learn about advertising effects by interrogating people about their attitudes and beliefs about advertising's influences. Respondents will usually comply with a request to assess features of ads, or to estimate advertising's impact on their behavior. Whether or not their expressed opinions indicate that they were (Gordon, 1986) or were not (Spielberger, 1986) influenced by media advertisements, such reports do not provide a reliable guide to advertising's role in smoking onset. Social desirability may bias responses in one way or another. Even if they believe themselves to be victims of Madison Ave. plots, people may not be willing to acknowledge this publicly. Alternatively, one may subjectively feel totally unmoved and unaffected by any and all ads, but nevertheless assume that ads do have some impact (perhaps on other people). In the latter instance, respondents would be willing to attribute persuasive force to advertisements, but such reports reflect nothing more than popular opinion. Bergler (1981), in an extensive review of several European studies addressing smoking and advertising, concluded that the way people describe or evaluate advertising bears no relation to their own consumer behavior, and is of no value in explaining that behavior. DiFranza, Richards, and Paulman (1991) found that very young children may be quite familiar with some of the features of cigarette advertisements. It does not follow that those ads are therefore instrumental in influencing tobacco

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consumption.

Some critics who ascribe substantial influence to advertising's role in smoking onset make strong claims about advertising effects which cannot be substantiated by any empirical evidence. For example, Yankelovich et al. (1977) had young female smokers and nonsmokers describe the individuals portrayed in a sample of cigarette advertisements. More than half of the respondents perceived these persons as attractive, well-dressed, sexy, young, enjoying themselves, etc. Smokers' perceptions were similar to those of nonsmokers'. On this basis, Gritz and Brunswick (1980) concluded that "... advertisers have been successful in creating a sense of mystery, sophistication, and power around the behavior of smoking" (p. 326). Since respondents were not asked to provide judgments about "mystery, sophistication, and power", one cannot infer their presence from the obtained data. How are individuals perceived when they are portrayed in advertisements for other products? Without these additional data, Yankelovich et al.'s (1977) findings are relatively meaningless, and Gritz and Brunswick (1980) appear to have over-interpreted the data. It is not improbable that most people depicted in most ads, (regardless of the product), are perceived by most people (smokers and nonsmokers alike) to be attractive, well-dressed, healthy, etc.

In another instance, Wong-McCarthy and Gritz (1982) suggested that "...the personality traits of toughness,

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friendliness, confidence, attractiveness and enthusiasm that are popularly attributed to cigarette smokers [in advertisements] could be sufficiently alluring to persuade adolescents to adopt the smoking habit" (p. 686). The problem with this claim is that no evidence is adduced showing that such traits are attributed by adolescents to smokers in advertisements, or in "real life". The attributions in question were made by the authors of the FTC report (Myers, 1981), who looked at a collection of advertisements. No data on peoples' perceptions of the advertisements were obtained. It is difficult to reconcile the notion of advertising's "allure" with the findings reviewed in the Self-Image section (see above). Barton et al. (1982), for example, found that smoking models were rated as less healthy and less wise than nonsmoking models. Sixth-grade subjects viewed smokers as "less desirable as friends", compared to nonsmokers.

'Low Involvement' Advertising

It is possible to argue that tobacco advertising could affect consumption in the absence of any recognition of advertising's influence on the part of the consumer. This view is based on Krugman's (1965) notion of "low involvement learning", and posits that the cumulative effect of repeated exposures to ads ultimately results in a shift in the relative

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salience of attributes of the advertised item. A significant aspect of this process is that it is largely "non-cognitive" -- the viewer does not alter his or her attitudes or beliefs as a consequence of conscious deliberations. Nothing verbalizable may have changed until the purchase actually takes place.

Essentially, Krugman provided a speculative account of how advertisements might be affecting viewers in the absence of any evidence of effects in terms of attitude change or persuasion scores. He invoked the notion of latent learning to support his argument. "Some psychologists have long asserted that the effects of 'latent' learning are only or most noticeable at the point of reward. In this case, it would be at the behavioral level involved in product purchases rather than at some intervening point along the way" (p. 354).

While there is some empirical support for the notion, it is important to note that products and/or brands may be selected and purchased for reasons which have nothing to do with advertising, thus a disclaimer on the part of the consumer with respect to advertising's influence cannot be taken as evidence of "low involvement" advertising effects. The latent learning paradigm to which Krugman refers differs in at least one crucial way from the advertising domain. In the former studies, the researchers were in a position to know with complete confidence that certain prior experiences provided the opportunity for learning which subsequent rewards made

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manifest. In the realm of consumer behavior, it is often impossible to determine the extent to which the consumer was psychologically involved ("low" or otherwise) with advertising. Nevertheless, the notion of low involvement learning is sometimes invoked in an attempt to explain the effects of tobacco ads on children.

Arbogast (1986), for example, identifies classical conditioning as "...the paradigm for much image-based cigarette advertising" (p. 409). Although the components of the conditioning process are not specified, the author states that the only way in which adolescents could fail to associate tobacco ads with enjoyable experience is "...if they escaped exposure to the stimuli" (p. 110). Since the latter possibility seems remote, she proposes various regulations on the form of tobacco ads.

A study by Chapman and Fitzgerald (1982) is cited to substantiate her claim regarding advertising effects on adolescents' smoking behavior. These authors found that teenage smokers could recall and recognize more information concerning cigarette ads than could their nonsmoking peers. Various other studies have shown that young smokers may be more familiar with or knowledgeable about tobacco advertisements or some features of their contents than non smokers (Aitken & Eadie, 1990; Klitzner, Gruenwald, & Bamberger, 1991). Such findings however, do not demonstrate that advertising is an antecedent cause of smoking initiation. An

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equally plausible explanation is that smokers are more likely to notice and/or recall advertising because they smoke. As Murray (1986) has argued, it "...has been empirically established that brand awareness, attitudes towards brands and intention to buy are all related to usage: that is, a flow of causality in the opposite direction to that postulated by the hierarchy of effect concept" (p. 22).

In an attempt to overcome the inherent limitations of cross-sectional studies, Aitken, Eadie, Hastings, and Haywood (1991) interviewed children twice, with a year between interviews. Children whose intentions to smoke became stronger between interviews tended to be more aware of cigarette advertisements at the time of the first interview. Unfortunately, the investigators did not adequately distinguish between awareness of tobacco ads and awareness of advertising in general. It is possible that children who are more extraverted and/or who have a more external locus of control would also show greater sensitivity to media images in their environment. Thus the assumed causal link between tobacco advertising and smoking intentions may be artifactual. Another problem with the study is that stated intentions to smoke are a poor predictor of initiation (Ary & Biglan, 1987).

Arbogast (1986) finds evidence of media influences on smoking in another study (Aitken, Leathar, & O'Hagan, 1985) -- arguably in spite of, rather than because of the findings

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